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Silencing Hearing Loss: the Loud Vocation of Naval Hospital Bremerton Audiologist

BY VJOHNSON – AUGUST 5, 2014

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By Douglas H Stutz, Naval Hospital Bremerton Public Affairs

Now hear this! Naval Hospital Bremerton's (NHB) occupational audiology officer is doing all she can to silence the disquiet regarding ear injuries in the Navy, specifically hearing loss and tinnitus.

Lt. A. Brooke Gordon, Medical Service Corps, assigned to Branch Clinic Puget Sound Naval Shipyard (PSNS), is responsible for the Hearing Conservation Program (HCP) at NHB, along with the three branch health clinics at PSNS, Naval Base Kitsap Bangor and Naval Station Everett, and two mobile units that support Navy Region Northwest commands.

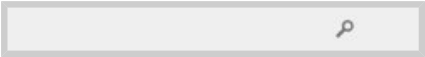
The Marion, N.C. native's personal initiative in carrying out her demanding duties has led to her to being selected as NHB's Junior Officer of the Quarter.

As an example of her hectic schedule, Gordon handled 214 diagnostic evaluations and 4,887 screening examinations during the recent fiscal quarter for both active duty personnel and civilian Department of Defense employees.

She also completed a hearing trend analysis of approximately 8,600 employees working in conjunction with Puget Sound Naval Shipyard and Intermediate Maintenance Facility command leadership to pinpoint specific areas within the shipyard where hearing loss is prevalent and the associated key causal factors.



Naval Hospital Bremerton's (NHB) occupational audiology officer, Lt. A. Brooke Gordon, Medical Service Corps, assigned to Branch Clinic Puget Sound Naval Shipyard (PSNS) prepares NHB's Audiology Division Clinical Audiocentric Test Booth to administer a screening examination as part of her overall duties and responsibilities that led her to being selected as NHB's Junior Officer of the Quarter. Gordon, a Marion, N.C. native, is doing all she can about the disquieting concerns regarding



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ear injuries in the Navy, specifically hearing loss and tinnitus and is responsible for the Hearing Conservation Program (HCP) at NHB, along with the three branch health clinics at PSNS, Naval Base Kitsap Bangor and Naval Station Everett, and two mobile units that support Navy Region Northwest commands and thousands of active duty Sailors and civilian personnel (Photo by Douglas H Stutz, NHB Public Affairs)

Gordon has also been a proactive advocate in promoting the ‘Buy Quiet’ program to PSNS & IMF Safety and management. A key initiative marketed to shipbuilders by the highest levels of Navy Medicine, this program encourages engineering controls in the conceptual design phase of ships as a means of preventing potential hearing loss.

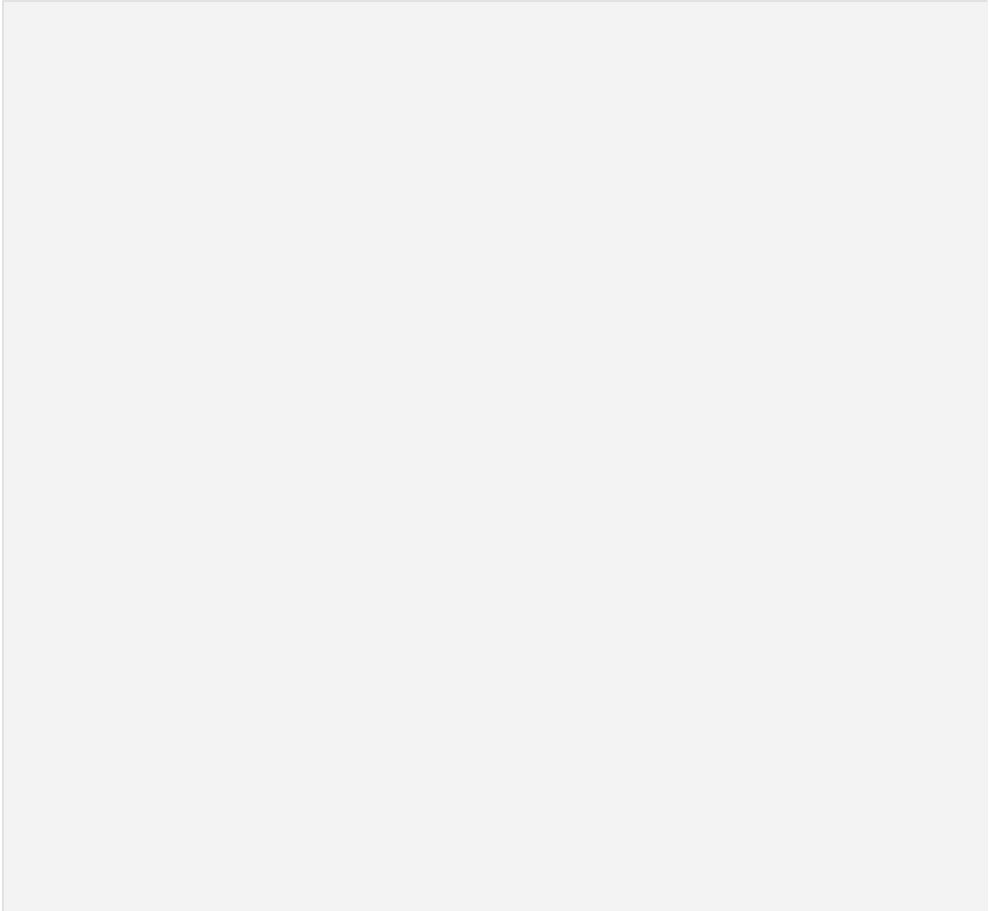
The premise of the program requires designers and engineers to obtain noise-emission data in order to choose the quietest and most cost-effective industrial equipment prior to purchase. Gordon’s efforts in the program that have included educating key regional safety supporters is helping PSNS & IMF management to incorporate needed changes where needed to help reduce hearing loss.

According to Cmdr. Suzanne Holtzclaw, Branch Health Clinic PSNS officer in charge, Gordon’s behind-the-scenes assistance helped PSNS & IMF maintain their Occupational Safety and Health Administration (OSHA) highest possible Voluntary Protection Program (VPP) ‘star’ certification level during a recent shipyard inspection.

“The military itself is noisy by nature. You have weapons fire, Improvised Explosive Device (IED) blasts, shipboard noise, not to mention engineering rooms and flight decks where decibel levels reach extremely hazardous levels. Controls are implemented when possible, but there’s only so much you can do to suppress the noise of a jet engine,” said Gordon, who has been at NHB for approximately half of her three years on active duty.

According to Gordon, when exposed to hazardous noise, the types of ear injuries that are likely to occur are hearing loss and tinnitus. The ear is made up of three parts: the outer ear, middle ear and inner ear. The outer and middle ear are conductors of sound; their job is to get the sound to the inner ear which is the end organ of hearing. Inside this inner ear are cilia, also called hair cells; these are what become damaged with prolonged exposure to continuous noise or loud impulse noises. A temporary shift can occur when these hair cells are damaged but are then able to regenerate themselves. With enough exposure to noise, these hair cells become unable to regenerate themselves which causes a hearing loss and very likely tinnitus. Sometimes this damage can cause tinnitus without any noticeable deficit in hearing.

“A good analogy is to think of these haircells like blades of grass. If one or two people walk across freshly cut grass the grass will most likely be able to pop back up. If a crowd of people walk across this grass continually, eventually the grass will not pop back up and will die. The people are equivalent to noise and the blades of grass are equivalent to the haircells in the inner ear,” explained Gordon.



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Providing an outside visual reference to explain inner aural workings is part of the educational process that Naval Hospital Bremerton's (NHB) occupational audiology officer, Lt. A. Brooke Gordon, Medical Service Corps, assigned to Branch Clinic Puget Sound Naval Shipyard (PSNS) has offered during the almost 4,900 screening examinations conducted by her last quarter for the Hearing Conservation program to help reduce hearing loss hroughout Navy Region Northwest (Photo by Douglas H Stutz, NHB Public Affairs).

Hearing loss can occur both immediately and over time. If it occurs immediately it could be due to an impulse noise ranging from close proximity to gun fire to something like an air-horn going off next to someone.

"But most hearing loss due to noise exposure occurs gradually and may not be noticed by the individual which is why we provide annual monitoring of hearing. It is important for individuals to realize that hearing loss doesn't only occur due to the noises they encounter at work or on the ship. Noise exposure is cumulative. People need to take into account noisy hobbies that contribute to possible hearing loss. Noisy hobbies can include loud concerts and night clubs, as well as loud tools such as saws or lawn mowers. Hearing loss is painless and progressive. Most people don't even realize they have hearing loss. Common complaints of someone who may have hearing loss are that they notice increased difficulty hearing others when background noise is present or when others are talking around them. They may have difficulty in restaurants or auditoriums. They may also ask people to repeat themselves or find they misunderstand what people say. Another good indicator is the preferred volume of the TV. If the individual is constantly told to turn the TV down when others are in the room, they may have hearing loss," stated Gordon.

Gordon not only stresses upon the personal and professional importance of hearing conservation, but also emphasizes the practical safety implications and importance of hearing loss prevention.

"For me, all three of these aspects – professional, personal and safety – intertwine. It's hard to separate them out individually. Instead I consider quality of life vs. safety," explained Gordon.

"With quality of life, I'm concerned about the affects of hearing loss to their overall quality of life. It may not affect them immediately, but when presbycusis (age related hearing loss) as well as the effects of ageing itself (meaning the rate at which one processes sound starts to decrease) begin to compound the problem of noise induced hearing loss then the overall quality of life of an individual often times declines. Hearing aids can help in these instances, but unlike correction lenses hearing aids, they are not corrective. They are merely aids that help to amplify sounds. If a person's hearing is distorted due to damage to the inner ear then hearing aids will only amplify that distortion."

"With safety, when a person has an extensive amount of hearing loss I then become concerned with the safety of the individual, the safety of the individuals working around the person with hearing loss as well as any possible damage that could occur to equipment around these individuals as a result of the hearing loss," continued Gordon. "If a person has enough hearing loss, they may have a decreased awareness of safety alarms around them and/or could have difficulty communicating with their co-workers. If somebody has difficulty communicating, they may misconstrue what somebody says which could lead to serious harm."

Gordon notes that hearing loss and related tinnitus are preventable with hearing protection use.

"Wearing earplugs correctly is the key to protecting your hearing. Most people don't wear specificallyfoam hearing protection devices (HPDs) correctly which is the most prevalent form of HPD," said Gordon.

The Hearing Conservation Program run by Gordon provides support throughout Navy Region Northwest such as hearing testing for adults in the hearing conservation program, hearing aid services for active duty members, as well as hearing conservation education and training to commands or shops who request such services. She also provides assistance to the fleet in helping them prepare their hearing conservation program for upcoming inspections.

Prevention of hearing loss is accomplished mainly through training and education which is a large proponent of Gordon's HCP and serves to increase the overall effectiveness of the program.

"I train new hearing conservation technicians for my region and any surrounding regions that may need it so that they have the tools and skills to effectively test individuals in the HCP annually and provide them with education. I also provide educational support to commands and ships in the form of safety briefs and stand downs, educating the personnel that will be working in the noise. I also assess the overall compliance of each command; monitor trends in shifts in hearing and hearing protection use and provide additional training as necessary based on the results of the data," Gordon shared.

Training and education involves teaching people in HCP about the ear, the effects of noise on hearing, why hearing protection is used, as well as how to choose the appropriate hearing protection.

"The most appropriate hearing protection for any person is the one that provides the most comfort and that the person can wear correctly. If the HPD is comfortable, that person will be more likely to wear it and if they learn how to wear it correctly then they should be able to retire/separate without acquiring noise induced hearing loss," Gordon said.

Gordon attests that despite the training and education, there is some feedback from servicemembers that they won't be able to hear possible life endangering sounds around them if they wear HPDs.

"For these individuals we try to offer them hearing protection that will still allow them to hear what's going on around them but will suppress any type of impulse noise such as gunfire. These types of earplugs are called combat arms earplugs. I understand their concern with wanting to be able to hear any and every sound which could mean life or death to them. But, on the other hand, if a blast or excessive gunfire occurs there could be a temporary shift in hearing which could result in an inability to hear these critical sounds for minutes, hours or even a few days after the noise exposure," said Gordon, citing that leadership plays a prominent role in getting people to wear hearing protection, both service members and civilians.

"If a senior chief or sergeant major is walking around saying that he doesn't need earplugs and the noise doesn't even bother him anymore – which most likely means he already has hearing loss – would you expect those under him to care or even want to use hearing protection? The same goes for the shop supervisors in the shipyard. The key to getting people to wear their hearing protection is getting the people that are in charge of these individuals to understand the importance of wearing them," stressed Gordon.

The importance is something Electronics Technician Chief Jack Bower now knows, after the fact, from serving a decade in submarines. Bower has been diagnosed with tinnitus.

"I would like to say that I always had proper protection on, but I didn't remember to use them all the time after I became a supervisor," said Bower. "If I could go back I would certainly ensure that I had my proper HPDs in place. I now have to turn my head at times to hear better and if I'm in a auditorium, there are sounds that are 'soft' and I can't hear like I used to. A noisy environment can be part of working in our environment, but hearing loss isn't."

If a person comes in for annual testing and has a shift in their hearing, they then have 30 days to come back and complete a second test to make sure it wasn't just have a temporary shift in their hearing. If the individual comes

back within that 30 days and the shift persists they are re-counseled on how to take the test and tested again that same day. The reason for testing a second time is because taking a hearing test and doing well on it sometimes takes practice or if someone is especially tired they may need to be motivated to try and listen for the softest sounds they can hear. If the shift persists on the third test they have now taken, that is when they are referred to the audiologist to complete more diagnostic testing.

“My job is to determine the cause for that shift in their hearing and more specifically to assess whether a shift is related to work related noise exposure or an underlying medical condition which would require referral to an specialist or their primary care physician,” Gordon said, adding that if someone perceives their hearing might be compromised,they should ask their primary care physician for a referral to an audiologist who can then definitively determine whether a person has a hearing loss or not.

Gordon’s Hearing Conservation Program can only do so much however. There are servicemembers being issued hearing aids, something that many usually associate with the older generation of retirees, not someone currently on active duty status.

“I was at a convention with other Navy audiologists and we got into a discussion on how such a large percentage of those we are fitting with hearing aids right now are in the early to mid-20s. A lot of this has to do with IED blasts and the impulse noise our service members are experiencing in theater. But with the gradual nature of noise induced hearing loss, individuals in their early to mid-40s are being fit as well. I can’t count how many individuals I fit with hearing aids where I take the time to make sure that they know how to correctly wear their hearing protection, and many times they say “wow, I wish I had been told that years ago, maybe then I would still have my hearing.” It’s sad that these individuals have to say this. But I believe the Department of Defense is making great improvements to where hopefully in 10-20 years, you won’t see as many individuals making these statements,” commented Gordon.



About vjohnson